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NXP, B.V.			PARTRIDGE, WILLIAM B	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/535,697	MUELLER, DETLEF
	Examiner	Art Unit
	William B. Partridge	2183

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 20 March 2007.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-8, 10 and 11 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-8, 10 and 11 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 19 May 2005 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____.
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date _____.	6) <input type="checkbox"/> Other: _____.

DETAILED ACTION

This Office Action is in response to the amendments filed on 3/20/2007.

Claim 9 has been canceled.

Claim 11 is newly presented.

Claims 1-3, 5-8, and 10 have been amended.

Claims 1-8 and 10-11 are pending and have been examined.

Specification

1. The objection has been withdrawn in light of the arguments presented by Applicant.

Claim Objections

2. The objections have been withdrawn in light of the amendments presented by Applicant.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the details of all the claims must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-8 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 5 disclose the limitation "optionally ended immediately, or the at least one program counter is reloaded with its current address or current value prior

to ending the instruction". This limitation is unclear because the optional aspect appears to read that the choice of ending the instruction or the reloading of the program counter is an optional step (i.e. that neither needs to occur). The instruction must end or the system will hang and be useless. For the purpose of examination it is assumed that the instruction is ended or optionally the program counter is reloaded with the current address.

Claims 2-4, 6-8, and 10 are rejected as being dependent upon rejected claims.

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-8 and 10-11 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1, 5, and 11 disclose the limitation "the program counter is reloaded with its current address or current value prior to ending the instruction". The specification fails to provide any support for this limitation in the claims. To the contrary the specification and the previously presented claims are directed towards

the reloading of the previous address or value as opposed to ending the instruction.

The specification and the previously presented claims would result in either the previous instruction being executed or the present instruction being executed again, the difference would be based on the interpretation as to when exactly the previous instruction's program counter value was loaded into the program counter, prior to or after the ending of the instruction respectively. The current claims would result in the next instruction being executed because the current value, even reloaded into the program counter, will be incremented at the end of the instruction resulting in program counter containing the next instruction address. The reloading of the current address into the program counter is an explicit contradiction to the original disclosure's reloading of the previous address into the program counter.

In the event that loading a value into the program counter would override the incrementing of the program counter (e.g. if the current value is reloaded into the program counter then that value is not incremented at the instruction's end) then the currently presented claims still contradict the original disclosure as the current claims would result in the same instruction being executed again and the original disclosure would result in the previous instruction being executed again.

Claim 5 discloses the limitation "at least one program counter is (re)loaded with at least one of a new/current address or new/current value". There is no support for this action in the specification, a program counter can only be loaded with a single value at a time and there is no discussion in the specification as to overwriting the program counter multiple times in one instruction.

Claims 2-4, 6-8, and 10 are rejected as being dependent upon rejected

claims.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 3-6 and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Cohen (EP 0 690 370 A2).

Claim 1 (amended) (As best understood)

Cohen teaches: **A microcontroller, the programming of which is carried out in at least one machine-dependent assembly language in which the assembler commands, with the exception of conditional program branches, are executable essentially independently of data, the microcomputer being adapted to execute a conditional branch instruction** (Page 8 line 41 – Page 9 line 29 *Note: Microcontrollers inherently carry instructions out in machine dependent languages as the hardware is usually unique based on the task desired. The conditional branch instruction by its conditional state, that is the instruction executes*

in specific ways based on value conditions, would be dependent on data), wherein in case of a fulfilled branch condition at least one program counter is loaded with a new address or a new value (Page 8 line 41 – Page 9 line 29 Note: Any instruction's execution, including that of a conditional branch, would result in a new address being loaded into the program counter if even to simply increment the program counter upon the completion of the current instruction), wherein in case of an unfulfilled branch condition is optionally either ended immediately, or the at least one program counter is reloaded with its current address or current value prior to ending the instruction (Page 8 line 41 – Page 9 line 29 Note: In the event the condition is not fulfilled the jump instruction will jump to a specified location. The address specified could be the current program counter address if desired).

Claim 3 (amended)

The rejection of claim 1 is incorporated and further Cohen teaches: **A smartcard controller including the microcontroller of claim 1** (Page 8 line 41 – Page 9 line 29 Note: *A microcontroller is inherently a smartcard controller. See "The Microsoft® Computer Dictionary" which defines a smartcard as "In computers and electronics, a circuit board with built-in logic or firmware that gives it some kind of independent decision-making ability".*)

Claim 4

The rejection of claim 1 is incorporated and further Cohen teaches: **An electrical or electronic device controlled by means of at least one microcontroller** (Page 8 line 41 – Page 9 line 29 *Note: Microcontrollers are designed to control devices and as such the microcontroller would inherently be capable of controlling an electrical or electronic device*).

Claim 5 (amended) (As best understood)

Claim 5 is the method claim corresponding to the product claim 1 and is rejected under the same reason set forth in connection with the rejection of claim 1.

Claim 6 (amended) (As best understood)

The rejection of claim 5 is incorporated and further Cohen teaches: **wherein in case of a fulfilled branch condition at least one of the new address or the new value is supplied to an input of the at least one program counter** (Page 8 line 41 – Page 9 line 29 *Note: Any instruction's execution, including that of a conditional branch, would result in a new address being loaded into the program counter if even to simply increment the program counter upon the completion of the current instruction), in case of an unfulfilled branch condition at least one of the address or value at and output of the program counter is supplied to the input of the at least one program counter* (Page 8 line 41 – Page 9 line 29 *Note: In the event the condition is not fulfilled the jump instruction will jump to a specified*

location. The address specified could be the current program counter address if desired).

Claim 8 (amended)

The rejection of claim 5 is incorporated and further Cohen teaches: **in case of an unfulfilled branch condition the option between ending the instruction immediately and re-loading the program counter with its at least one of its current address or with its current value is controlled by at least one special bit** (Page 8 line 41 – Page 9 line 29 *Note: The special bit is inherently present in the robust jump instruction in that the opcode for the robust jump instruction must be different from the regular jump instruction, the difference in the opcodes would include at least one bit that was different in order to indicate this difference*).

Claim 10 (amended)

The rejection of claim 8 is incorporated and further Cohen teaches: **the special bit option can be switched on and off by means of at least one random function or by means of at least one suitable bit sequence** (Page 8 line 41 – Page 9 line 29 *Note: The decision to use the robust or non-robust jump would be decided by program execution, a suitable bit sequence*).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen (EP 0 690 370 A2) in view of Delvaux et al. (US 6,851,046 B1).

Claim 2 (amended)

The rejection of claim 1 is incorporated and further Cohen teaches: **in case of a fulfilled branch condition, an input of the at least one program counter is loaded with the new address or the new value** (Page 8 line 41 – Page 9 line 29)

Note: Any instruction's execution, including that of a conditional branch, would result in a new address being loaded into the program counter if even to simply increment the program counter upon the completion of the current instruction), in case of an unfulfilled branch condition, the input of the at least one program counter is loaded with the address or value at and output of the program counter (Page 8 line 41 – Page 9 line 29) *Note: In the event the condition is not fulfilled the jump instruction will jump to a specified location. The address specified could be the current program counter address if desired).*

Cohen does not specifically teach: **at least one multiplex unit triggerable by means of the result of the testing of the branch condition**

However, Delvaux, in an analogous art, does teach the above limitation (Fig 1D, Column 5 line 27 – Column 6 line 24). One of ordinary skill in the art would appreciate the use of a multiplexer to select the new input to the program counter between an incrimination of the program counter, a direct load, or the result of a jump.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Delvaux into the teaching of Cohen to have a multiplexer select the program counter's input value. The modification would have been obvious because one of ordinary skill in the art would have been motivated to allow the target address of multiple branch locations to be available at the input of the program counter so that no delay is incurred in fetching a specific address.

Claim 11 (new)

Cohen/Delvaux teaches: A microcontroller which is programmable in at least one machine-dependent assembly language in which the assembler commands, with the exception of conditional program branches are executable essentially independently of data, the microcomputer being adapted to execute a conditional branch instruction including a branch address (Cohen, Page 8 line 41 – Page 9 line 29 Note: Microcontrollers inherently carry instructions out in machine dependent languages as the hardware is usually unique based on the task desired. The conditional branch instruction by its

conditional state, that is the instruction executes in specific ways based on value conditions, would be dependent on data), the microcontroller comprising: a program counter (Cohen, Page 8 line 41 – Page 9 line 29 *Note: There is inherently a program counter*); **a multiplexer** (Delvaux, Fig 1D), **wherein in case of a fulfilled branch condition the multiplexer is controlled to load the branch address into the program counter, and wherein in case of an unfulfilled branch condition the multiplexer is controlled to reload the program counter with its current address prior to ending the instruction** (Cohen, Page 8 line 41 – Page 9 line 29; Delvaux, Fig 1D)

Note: See the rejections of claims 1 and 2 above

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen (EP 0 690 370 A2) in view of Gammel (DE 10044837 C1).

Claim 7 (amended)

The rejection of claim 5 is incorporated but Cohen does not specifically teach: **the testing of the branch condition or the loading of the program counter is/are carried out with complementary data.**

However, Gammel, in an analogous art, does teach the above limitation (Claim 8 – *“Procedure after claim 7, marked in that the signals level of the first direction of a direction couple is logical 0 or 1, while the signals level of the second direction is logical 1 or 0.”*). The complementary data is on the second signal line

and both lines are used along the data transfer path. One of ordinary skill would appreciate the use of complementary data use in order to prevent detection of what the actual value is.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Gammel into the teaching of Cohen to also have complementary data present. The modification would have been obvious because one of ordinary skill in the art would have been motivated to have the complementary data available in the event that the value along that data path is attempted to be detected, by having both possible values present it would be impossible to detect if the branch had actually occurred or not.

Response to Arguments

13. Applicant's arguments filed 3/20/2007 have been fully considered but they are not persuasive. In remarks, the applicant argues in substance:

(1) Cohen does not teach optionally either ended immediately or the program counter is reloaded with its current address or current value prior to ending the instruction as disclosed in claim 1.

Examiner believes that Cohen does teach ending the instruction or reloading the program counter.

Cohen teaches the use of a robust jump instruction, an instruction that has three possible jump locations. The first location is dependent upon a first condition being false, the second is dependent upon the first condition being true and the

second condition being false, and the third is dependent upon both conditions being true. The second condition would control the immediate ending (DoNotJump in the example) or the reloading (DoJump in the example).

(2) Incrementing a counter is not the same as loading the counter register with a new address.

Examiner never argued that the incrementing of the counter is the same as loading the counter with a new address. Examiner only argued that any instruction's execution would result in a new value being loaded into the program counter if just by the incrementing of the program counter at the end of the instruction.

Examiner understands clearly the differences associated with a program counter being incremented versus a new value being loaded into the program counter directly. While a direct load into the program counter will come from something external to the program counter itself, be it the instruction decoder for an immediate value or from a memory location for a direct address, and the incrementing can be done from the program counter itself much like a basic counter. Regardless, both do result in a new value being loaded into the program counter; the difference is the source of the load.

(3) Cohen does not specifically teach a special bit with regards to Cohen's robust jump instruction nor does Cohen teach a regular jump instruction.

Examiner believes that Cohen does teach a special bit with regards to the robust jump instruction and also teaches a regular jump instruction.

Cohen teaches a robust jump instruction and a regular jump instruction (See the example showing a sample robust jump instruction made of jump instructions).

As the instructions must have different opcodes there is inherently a bit difference indicating the difference of the robust jump instruction compared to the regular jump instruction. Without such indication it would be impossible to determine the difference between the two instructions.

(4) A microcontroller is not a smartcard.

Examiner believes that a microcontroller is in fact a smartcard.

According to the Microsoft® Computer Dictionary, a smartcard is defined as such: *In computers and electronics, a circuit board with built-in logic or firmware that gives it some kind of independent decision-making ability.* A microcontroller is a circuit board with built-in logic that allows it to execute instructions and thereby make decisions.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William B. Partridge whose telephone number is (571) 270-1402. The examiner can normally be reached on M-TR 7:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (571) 272-4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Examiner: William B. Partridge
Date: 5/22/2007



RICHARD L. ELLIS
PRIMARY EXAMINER